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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,207	11/12/2003	Rajesh Shah	P17145	8273

46915 7590 08/10/2007

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EXAMINER	
SEYE, ABDOU K	
ART UNIT	**PAPER NUMBER**
2194	

MAIL DATE	DELIVERY MODE
08/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/712,207	SHAH ET AL.	
	Examiner	Art Unit	
	Abdou Karim Seye	2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 July 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :05/30/2007, 11/08/2004,06/09/2005, 09/02/2005.

DETAILED ACTION

Response to Amendment

1. The amendment filed on May 30, 2007 has been received and entered. Claims 1, 13-14, 23, 25-26, 28, 37 and 40 have been amended .The currently pending claims considered below are Claims 1-40.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2,4-5, 9-15,17-18, 22-29, 31-32 and 36-40 are rejected under 35 U.S.C. 102(e) as being anticipated by DiCorpo et al. **(US 20040139240).**

Claims 1, 14, 26 and 28, DiCorpo teaches a method, system and product for interfacing with device hardware supporting a plurality of devices included in the device hardware, comprising:

initializing a device interface driver to represent the device hardware as a virtual bus to an operating system and to represent to the operating system each device

supported in the device hardware as a device attached to the virtual bus (FIG. 1; paragraph 80);

initializing the device hardware (paragraph 36, 67 and 68; configuration process);

accessing the device hardware to determine the devices included in the device hardware (paragraph 0038; identifier);

generating one device object for each determined device in the device hardware, wherein each generated device object represents the determined device to the operating system (paragraph 36); and

reporting the determined devices to the operating system, wherein the operating system loads a device driver for each of the reported devices supported by the device hardware (paragraph 41 and 114).

Claim 2 and 15, Dicorpo further teaches,

reporting to the operating system that the determined devices are dependent on the virtual bus, wherein in response to being notified that the determined devices and virtual bus are dependent, the operating system will not remove the device interface driver representing the virtual bus until the device drivers associated with the determined devices are removed (paragraph 41 and 114).

Claims 4, 17 and 31, Dicorpo teaches,

wherein the hardware device comprises a network adaptor and wherein each device available in the network adaptor supports a protocol engine for different communication protocols (FIG. 5 : 510, paragraph 62) .

Claims 5, 18 and 32, Dicorpo further teaches,

wherein each protocol engine processes packets according to a communication protocol and a network protocol, wherein each transport engine supports a different communication protocol and uses a same network protocol (paragraph 62-66).

As per Claims 9, 22, 36, 10, 23 and 37, they are rejected for the same reasons as the claims above.

Claims 11, 24 and 38, Dicorpo teaches,

in response to detecting a change in the configuration of devices supported by the device hardware, signaling the operating system of the changed configuration of devices available in the device hardware, wherein the operating system is capable of loading or unloading device drivers to support the changed configuration of devices available in the device hardware (paragraph 59).

As per claims 12 and 39, they are rejected for the same reasons as the claims above.

Claim 13, 25 and 40, Dicorpo teaches, wherein one device includes a protocol engine supporting the Internet Small Computer Interface (iSCSI) communication protocol and Transmission Control Protocol (TCP) communication protocol (paragraph 63), wherein one device includes a protocol engine supporting an offloaded Local Area Network (LAN) communication protocol (paragraph 46 and 57; load command, and wherein one device includes a protocol engine supporting non-offloaded-LAN protocol (paragraph 46 and 57; unload command).

As per claims 27 and 29, they are rejected for the same reasons as claims 2 and 15 above.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103 (a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 6-8,19-21 and 33-35) are rejected under 35 U.S.C. 103 (a) as being unpatentable over DiCorpo et al. **(US 20040139240)** in view of Brownell et al **(US 20030130833).**

Claims 6, 19 and 33, DiCorpo teaches a method, system and product for interfacing with device hardware as in claims 1, 14, 26 and 28 above and further discolses a router 106 that queues commands and data in (FIG. 1, paragraph 43), but he does not explicitly discloses receiving a packet from one device driver; determining a device queue in the device hardware queuing packets for the device supported by the device hardware corresponding to the device driver; and writing the received packet to the determined queue. However, in the same field of endeavor, Brownell discloses receiving a packet from one device driver; determining a device queue in the device hardware queuing packets for the device supported by the device hardware corresponding to the device driver; and writing the received packet to the determined queue (FG. 4A-C; paragraph 49, 78 and 177). It would be obvious to one having ordinary skill in the art at the time the invention was made to modify Dicorpo's invention with Brownell's invention to provide guaranteed packets data delivery. One would have been motivated to queuing packets data before writing the received packets data on a computer system in order to provide performance improvements on data transfer by error reduction (Brownell ; paragraph 69).

As per Claims 7, 20 and 34, in the same field of endeavor, Brownell discloses receiving notification from the device hardware concerning transmission of one packet; determining the device driver for the device in the network adaptor that processed the packet; and transmitting notification to the determined device driver indicating the

notification received from the device hardware (paragraph 71,72). It would be obvious to one having ordinary skill in the art at the time the invention was made to modify Dicorpo's invention with Brownell's invention to provide guaranteed packets data delivery. One would have been motivated to queuing packets data before writing the received packets data on a computer system in order to provide performance improvements on data transfer by error reduction (Brownell ; paragraph 69).

As per Claims 8, 21 and 35, in the same field of endeavor, Brownell discloses receiving indication of a packet provided by the device hardware ; determining the device driver for the device supported by the network adaptor that processed the provided packet ; invoking a call to cause the determined device driver to process the provided packet (paragraph 50,51). It would be obvious to one having ordinary skill in the art at the time the invention was made to modify Dicorpo's invention with Brownell's invention to provide guaranteed packets data delivery using a notification service. One would have been motivated to queuing packets data before writing the received packets data on a computer system in order to provide performance improvements on data transfer by error reduction (Brownell ; paragraph 69).

6. Claims 3, 16 and 30 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Dicorpo, et al. **(US 20020069245)** in view of Malueg et al. **(US 20040003300).**

Claims 3, 16 and 30, DiCorpo teaches a method, system and product for interfacing with device hardware as in claims 1, 14, 26 and 28 above, but he does not explicitly discloses reporting to the operating system that a power state of the virtual bus represented by the device interface driver cannot be altered until all the device drivers representing devices attached to the virtual bus have their power state similarly altered. However, in the same field of endeavor, Malueg discloses a power management architecture including a power manager application interface with function for registering device-specific power state. The power manager executes decision logic whether to altering or not alter power state of a device until certain requirements are met(abstract; paragraph 44; fig. 10, 11 and 12). It would be obvious to one having ordinary skill in the art at the time the invention was made to modify Dicorpo's invention with Malueg's invention to use the power state manager decision making process to alter or not alter the power state of a virtual bus, because it would enable a number of diverse interests to be served including prolonging battery life, controlling heat creation. One would have been motivated to use a power state manager in order to avoid wasting energy while transmitting packed data to devices connected to a computer system.

Response to Arguments

7. Applicant's arguments with respect to claims 1-40 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to the applicant's disclosure.

Langendorf et al (20040148376) discloses a virtual pci device apparatus and method.

Rangan et al (20040148376) discloses a storage area network processing device.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

AKS
July 25, 2007

WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER